



## NPP Status



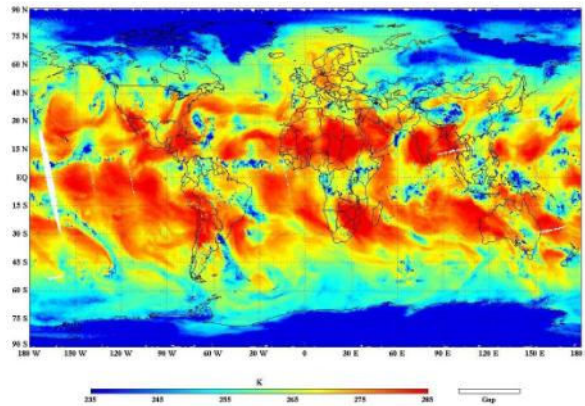
- Spacecraft in normal Mission Mode, all systems nominal
- Ground System performance nominal with data flowing to NESDIS and AFWA Centrals and to CLASS archive
- All Instruments are in normal operational mode
  - ATMS SDR data declared provisional (ready for broader use)
  - ATMS SDR/TDR to be used operationally by NOAA NCEP (NWP center) in April 2012
  - VIIRS, CrIS, OMPS, and CERES Instrument Commissioning is continuing



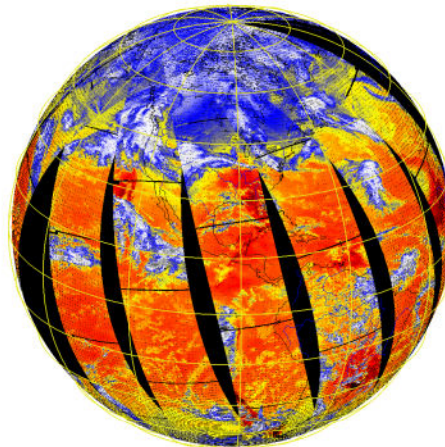
# Suomi - NPP Images



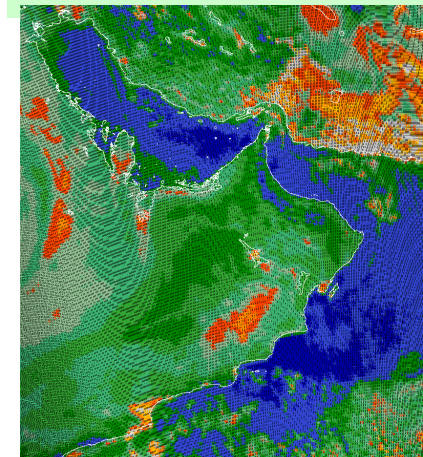
ATMS



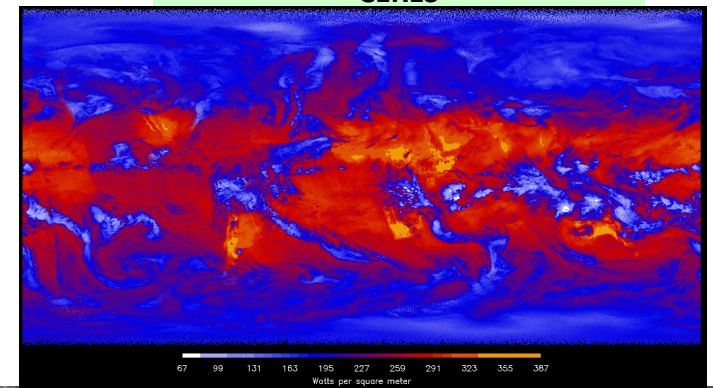
CrIS



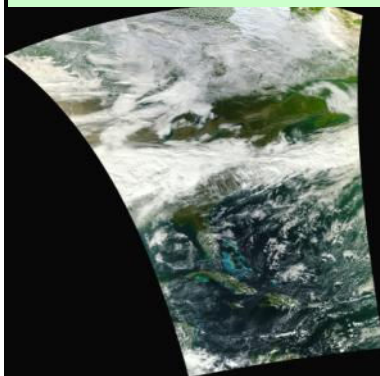
OMPS



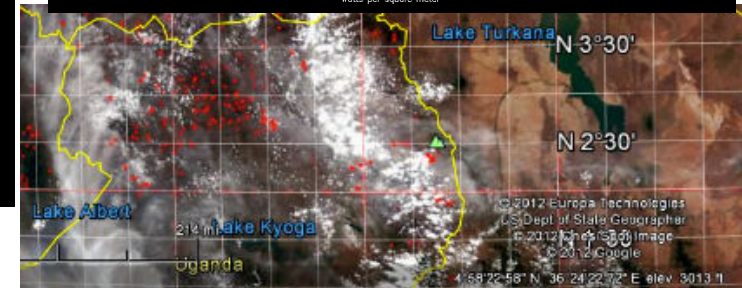
CERES



VIIRS 1<sup>st</sup> Image



VIIRS Night, Visible & Fires





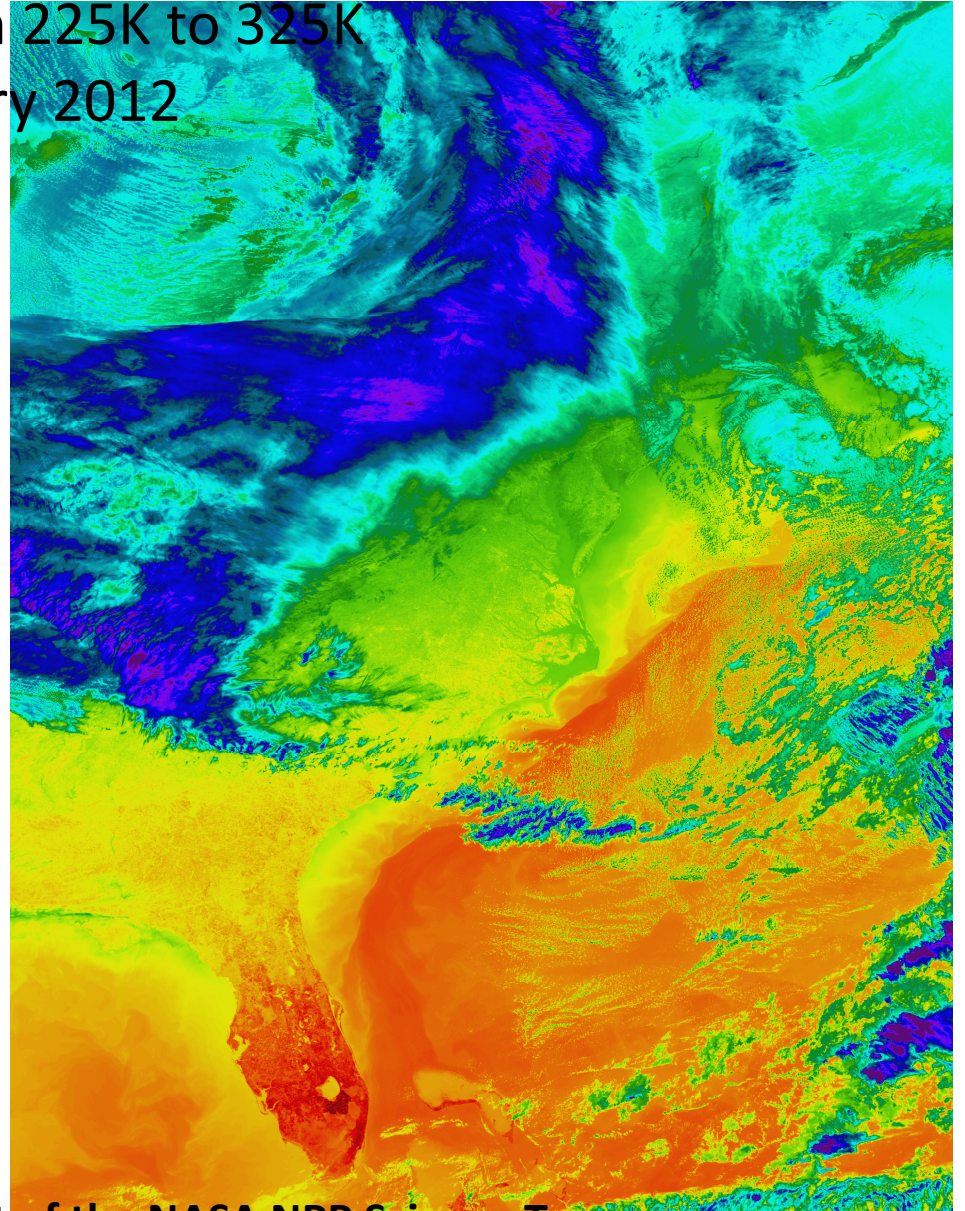
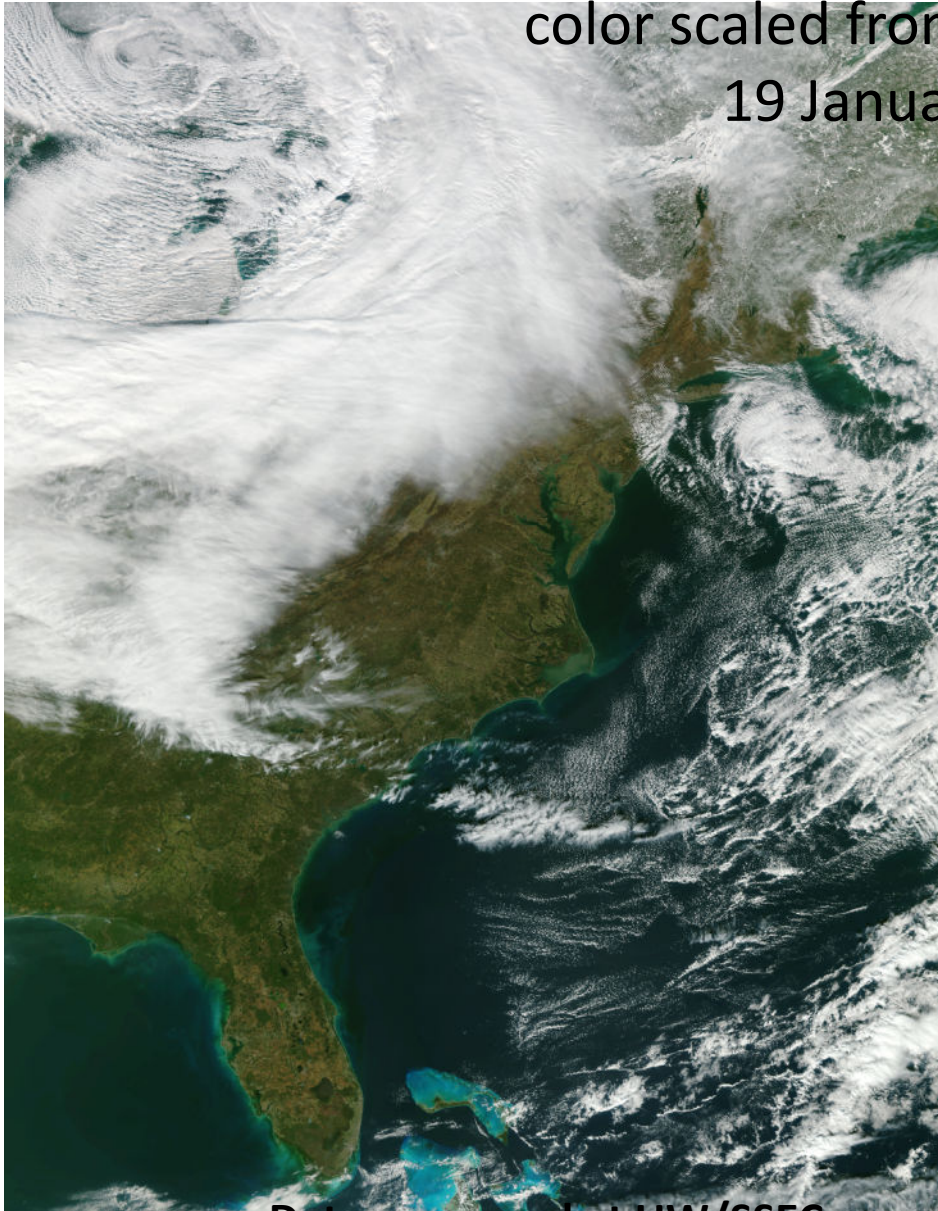




VIIRS M05/M04/M03 (red/green/blue)  
VIIRS M15 (10.76 microns)



color scaled from 225K to 325K  
19 January 2012

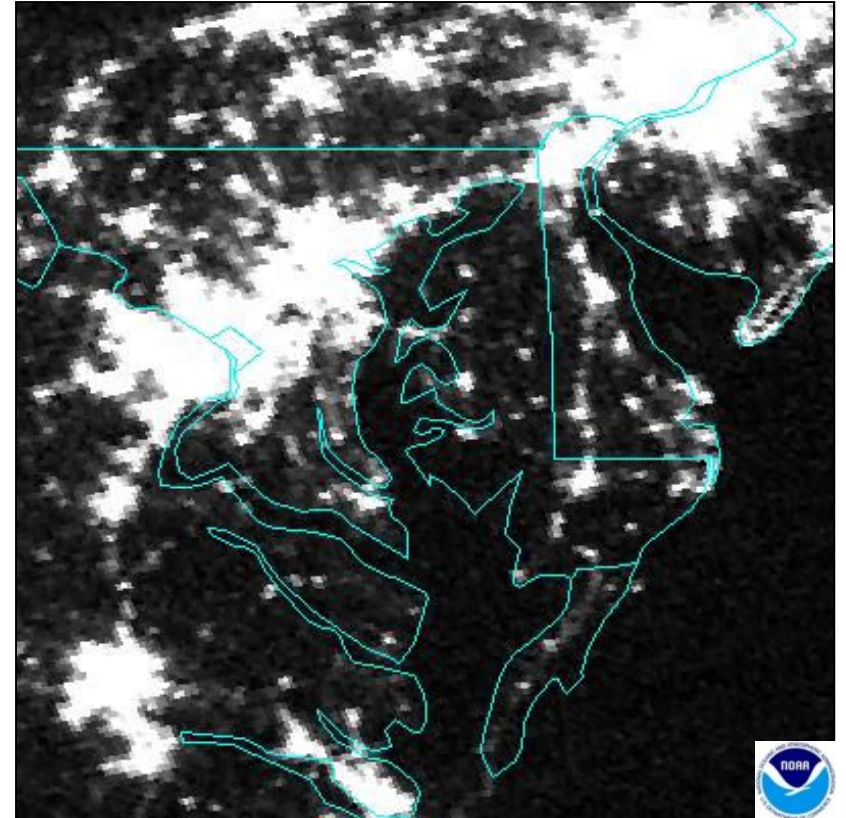
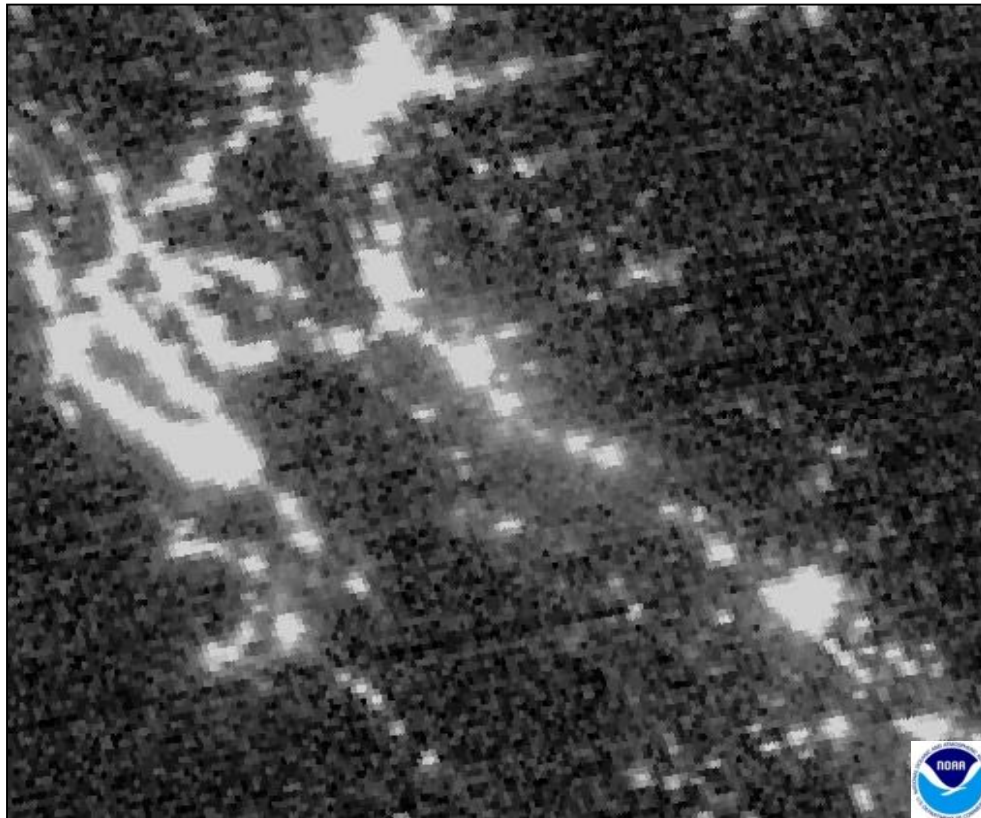


Data processed at UW/SSEC as part of the NASA NPP Science Team





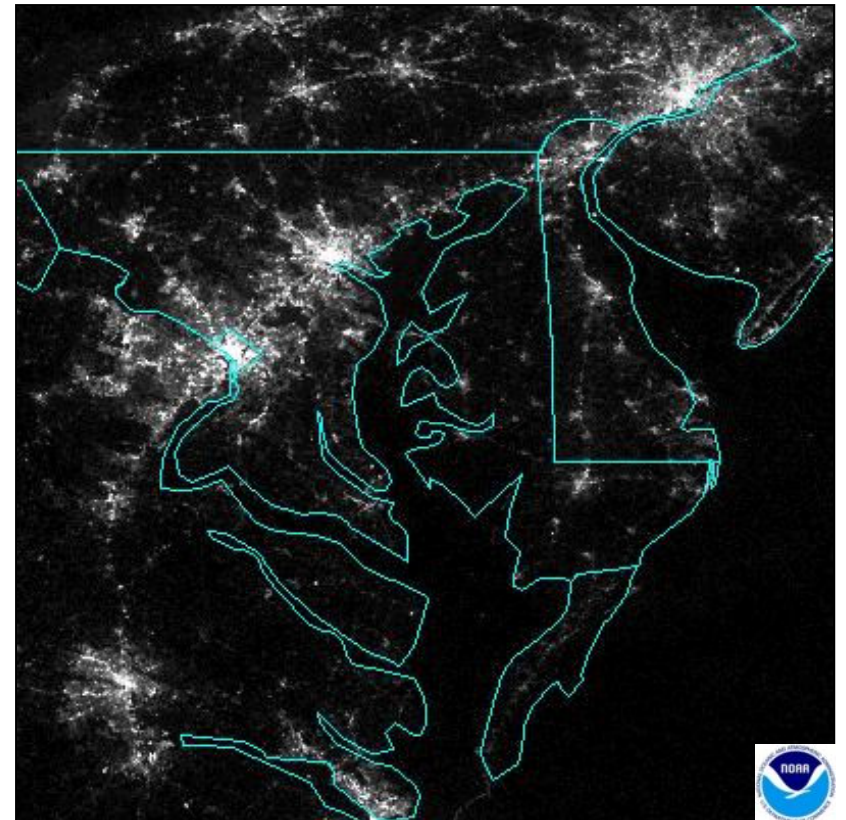
# Resolution Improvements: OLS vs. DNB



- 740 m instantaneous geometric field of view (DNB) vs. ~5 km for the OLS results in dramatic spatial resolution improvements.
- DNB Imagery courtesy of Steven Miller CIRA/CSU



# Resolution Improvements: OLS vs. DNB

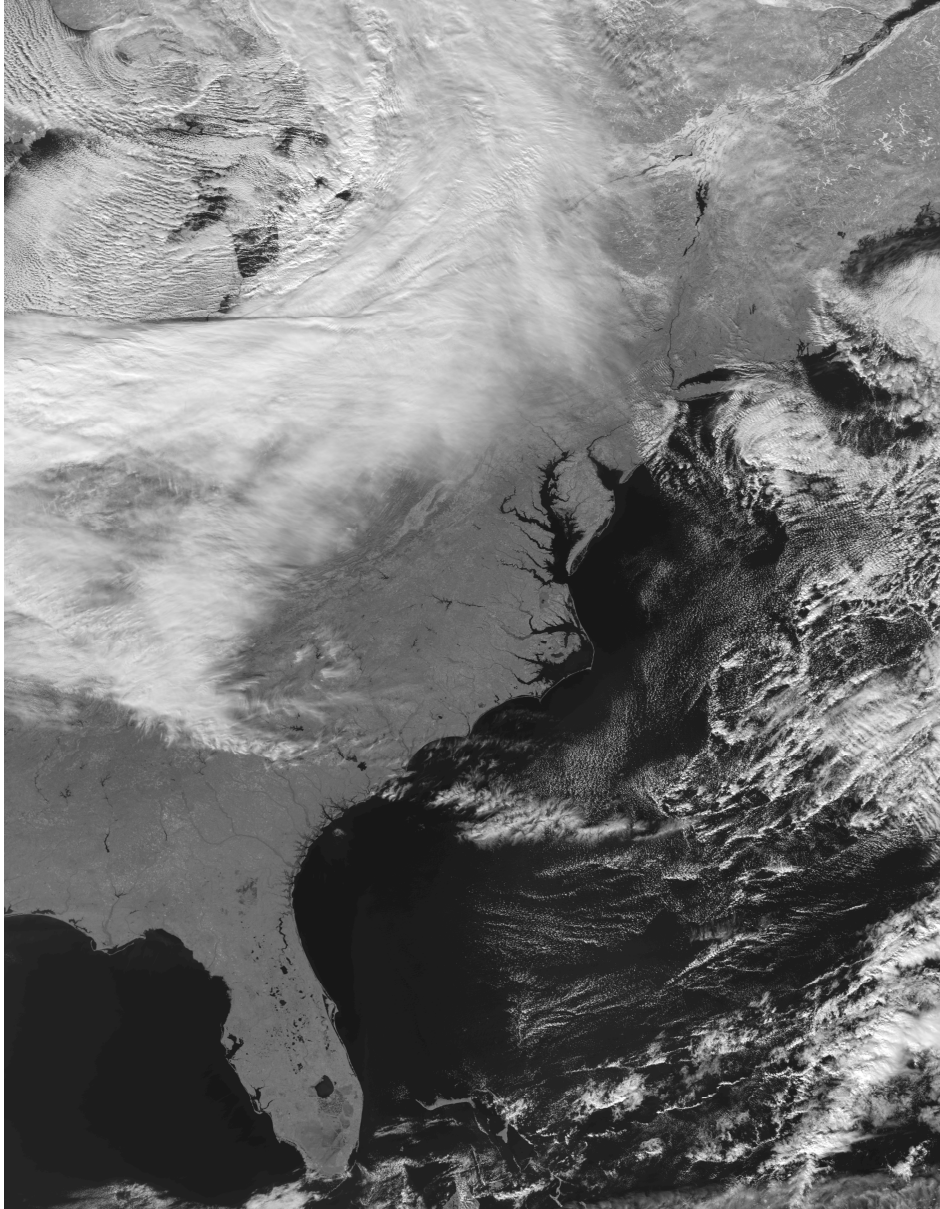


- 740 m instantaneous geometric field of view (DNB) vs. ~5 km for the OLS results in dramatic spatial resolution improvements.
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## VIIRS M07 (0.865 microns) grey scaled 19 January 2012

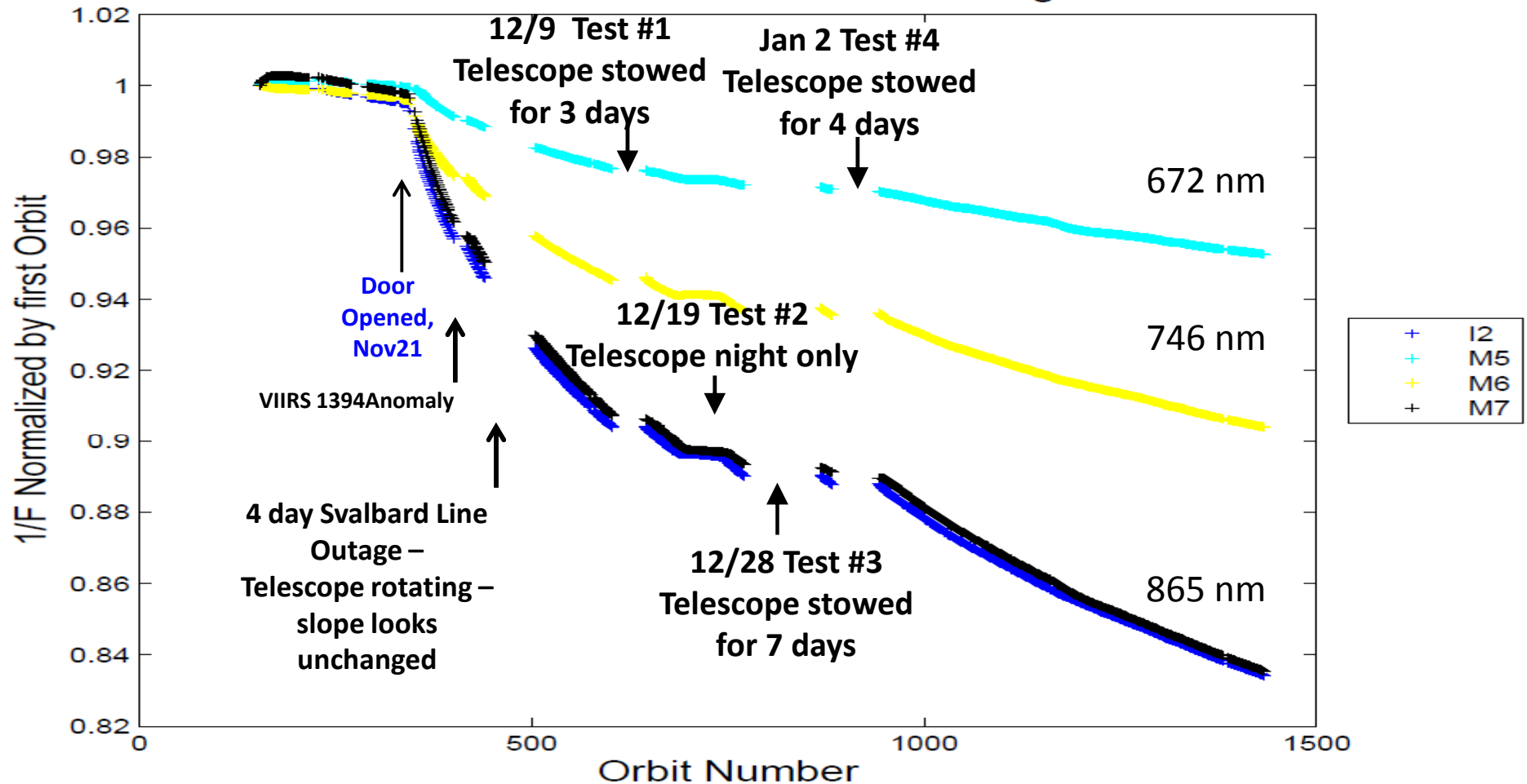


- **VIIRS Data Anomaly**
- **Degradation in M7/I2 observed after launch.**
- **Smaller effect in M6 & M5.**
- **Commissioning paused while anomaly was studied.**
- **Degradation believed to be caused by an error in mirror coating process. An inadvertent layer of tungsten film was put on telescope mirrors.**
- **Commissioning resumed Jan 18**
- **Degradation is slowing, should level off.**
- **No effect on VIIRS data products; VIIRS SNR in M7 expected to be above spec.**



## VIIRS Anomaly

### Change in VIIRS Solar Data as a function orbit number



F is conversion factor that compares the measured VIIRS solar data to the predicted value.

Data shows 1/F-factor. Should be 1 for new instrument.

Test periods used to diagnose VIIRS anomaly.

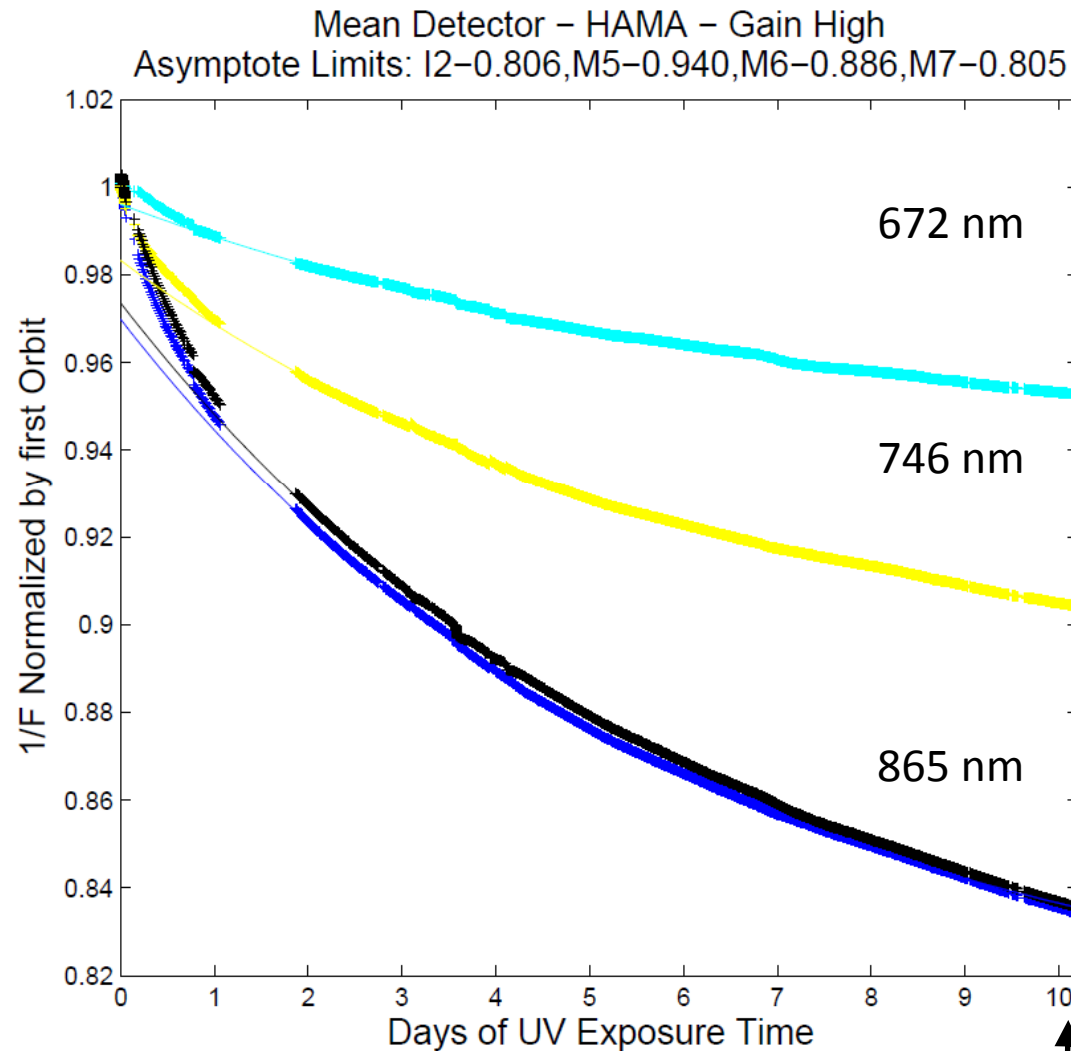
Data show anomaly depends on solar exposure; increases with light; stops in dark.





## VIIRS Anomaly

### Change in VIIRS Solar Data as a function of UV exposure



Anomaly depends on exposure to light, probably in the UltraViolet (UV) region.

Calculate amount of UV exposure in each orbit. Replot data, converting x-axis from orbit number to UV exposure time.

1 day UV exposure = 6.5 calendar days.

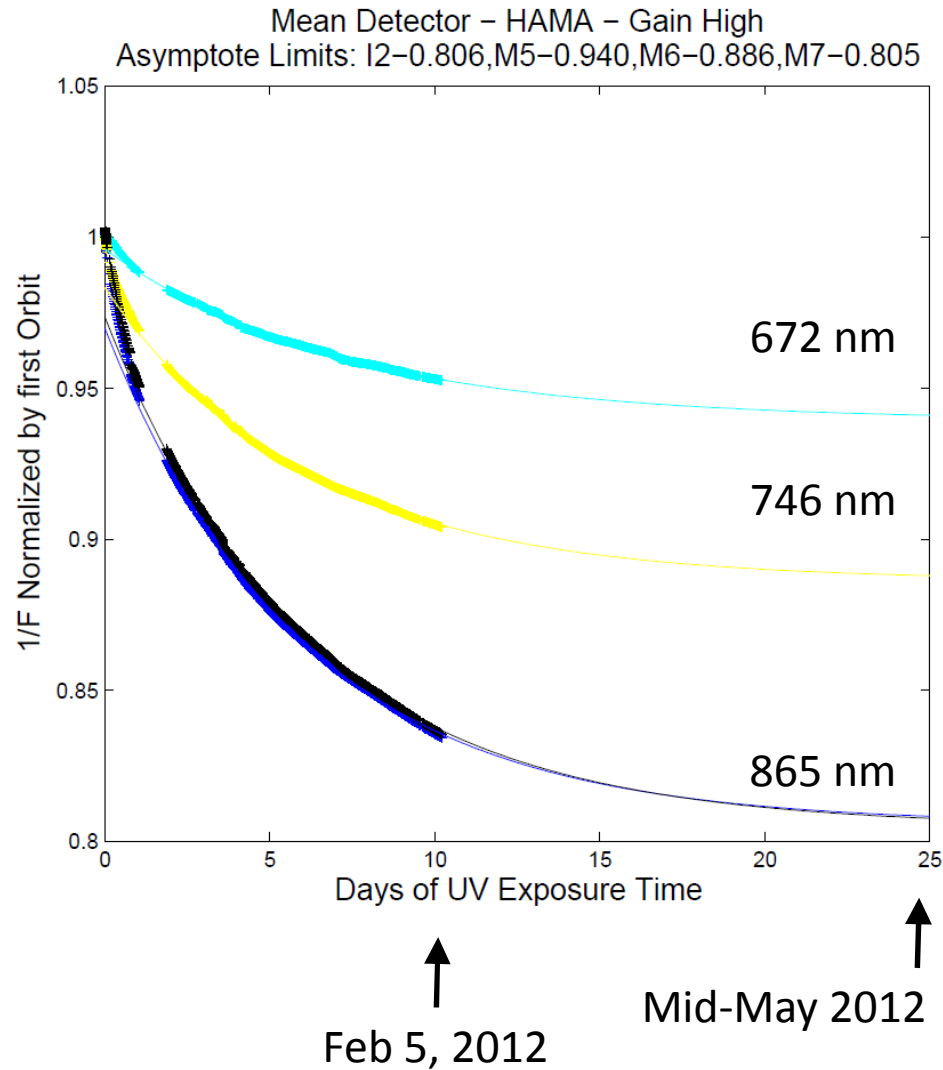
Data shows smooth dependence on UV exposure.

Feb 5, 2012



## VIIRS Anomaly

### Predict Amount of Change in VIIRS using Solar Data



1 day UV exposure = 6.5 calendar days.

For M7/I2 865 nm High Gain Signal-to-Noise (SNR)

	SNR	Margin
Specification	215	
Raytheon	419	95%

Analyze with a simple predictive optical model of multiple mirrors with an absorbing coating.

Model predicts throughput reduced to 81%

	SNR	Margin
Adjusted Raytheon	339	58%

Gov't estimates of VIIRS SNR are higher than Raytheon's.

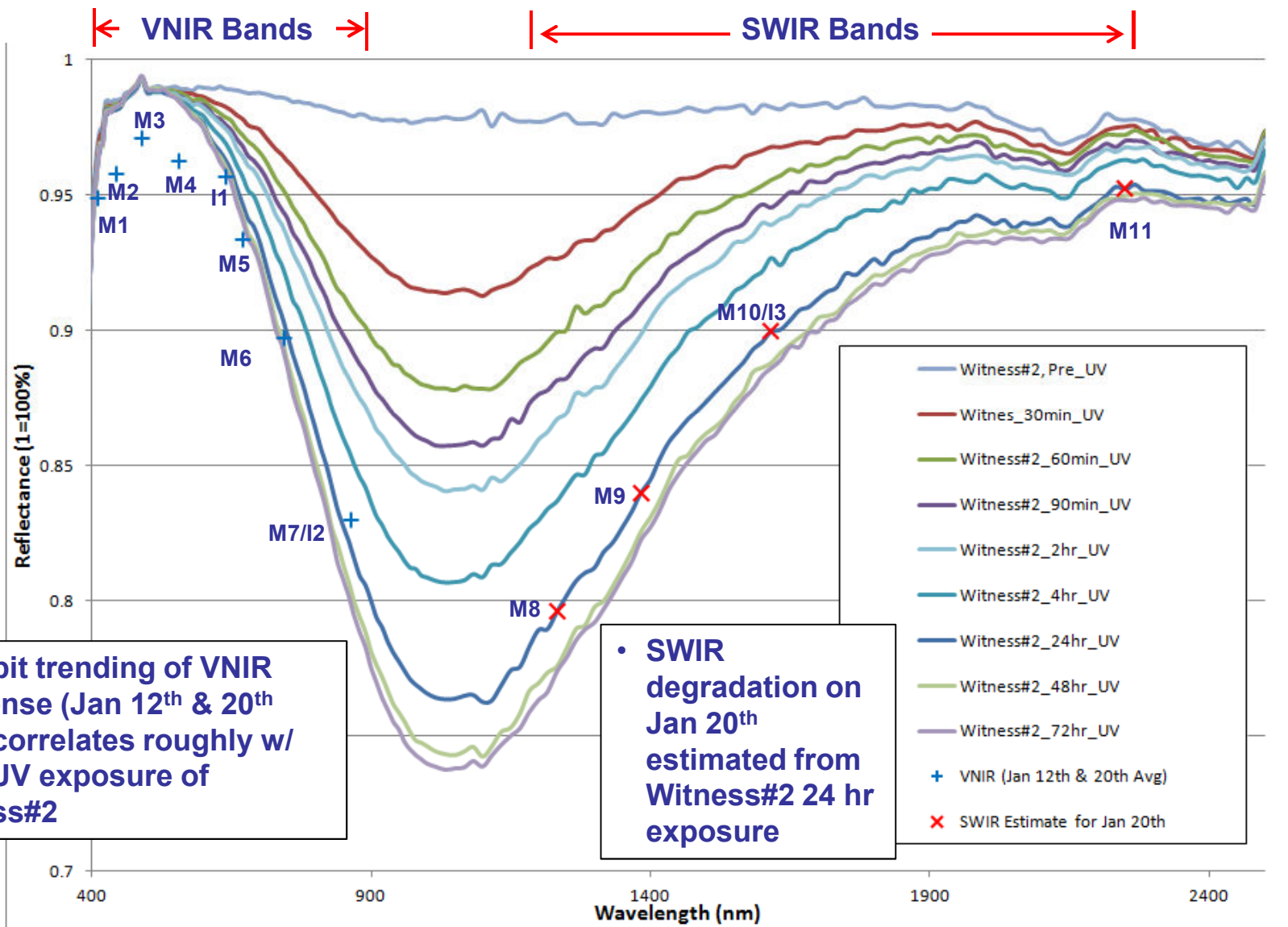
Raytheon producing more sophisticated predictive optical model of VIIRS degradation.





# SWIR Degradation Estimated based on Witness #2 UV Exposure

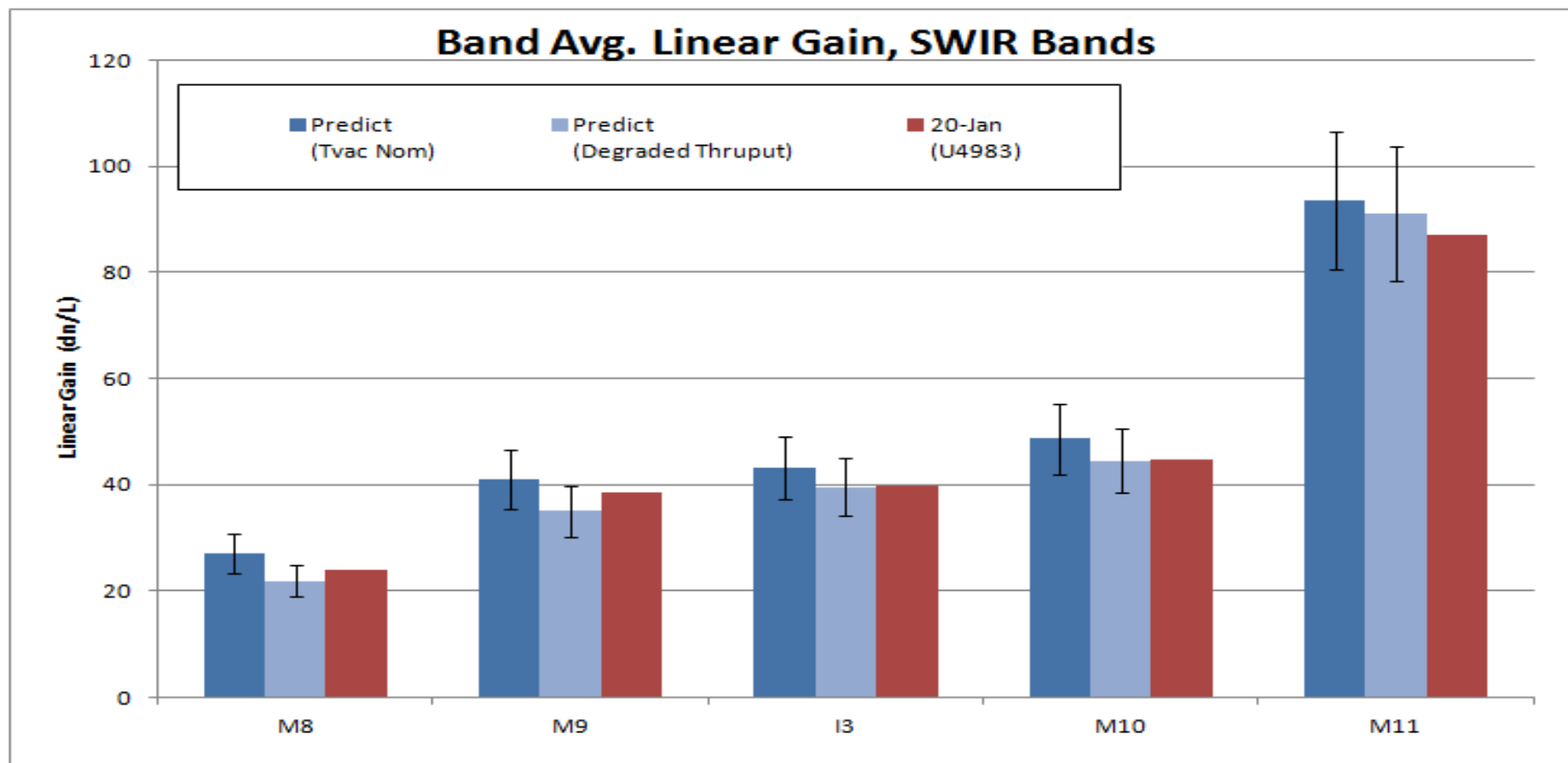
**Raytheon**  
Space and Airborne Systems





# SWIR Turn-on shows expected performance

**Raytheon**  
Space and Airborne Systems



**Error Bars are +/-13% of predicted gain**

- Original based sensor-TV, nominal plateau RC2 P2
- Degraded thruput reduces original by 24 hr UV exposure results for Witness#2





Questions?

